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# Quality Engineering Test Report

**SERIES: S-150 150W AC-DC SINGLE OUTPUT SWITCHING POWER SUPPLY**

**SAMPLE:** A.S-150-5 5V / 30A D.S-150-12 12V / 12.5A G.S-150-24 24V / 6.5A
B.S-150-7.5 7.5V / 20A E.S-150-13.5 13.5V / 11.2A H.S-150-27 27V / 5.6A
C.S-150-9 9V / 16.7A F.S-150-15 15V / 10A D.S-150-48 48V / 3.2A

| NO | TEST ITEM | TEST CONDITION / SPECIFICATION | RESULT | VERDICT |
|---|---|---|---|---|
| 1 | AC INPUT VOLTAGE RANGE | I/P:TESTING SPEC:176~264VAC<br>O/P:FULL LOAD | E:128VAC~267VAC | P |
| 2 | LINE REGULATION | I/P:176~264VAC SPEC:<br>O/P:FULL LOAD<br>A: ±0.5%<br>B: ±0.5%<br>C: ±0.3%<br>D: ±0.3%<br>E: ±0.3%<br>F: ±0.3%<br>G: ±0.3%<br>H: ±0.2%<br>I : ±0.2%<br>±0.2% | A: 0% ~ 0.12%<br>B: 0% ~ 0.08%<br>C: -0.07% ~ 0%<br>D: -0.05% ~ 0%<br>E: -0.044% ~ 0.044%<br>F: -0.04% ~ 0%<br>G: -0.05% ~ 0%<br>H: -0.044% ~ 0.044%<br>I: -0.064% ~ 0.025% | P |
| 3 | LOAD REGULATION | I/P:230VAC SPEC:<br>O/P:MIN. TO FULL LOAD<br>A: ±0.5%<br>B: ±0.5%<br>C: ±0.3%<br>D: ±0.3%<br>E: ±0.3%<br>F: ±0.3%<br>G: ±0.3%<br>H: ±0.2%<br>I : ±0.2%<br>±0.2% | A: -0.12% ~ +0.12%<br>B: -0.16% ~ +0.08%<br>C: -0.07% ~ +0.07%<br>D: -0.05% ~ +0.05%<br>E: -0.044% ~ 0.044%<br>F: -0.04% ~ +0.04%<br>G: -0.02% ~ 0%<br>H: -0.022% ~ 0%<br>I: -0.013% ~ 0.013% | P |
| 4 | OUTPUT VOLTAGE TOLERANCE | I/P:176~264VAC SPEC:<br>O/P:0% TO FULL LOAD<br>A: ±2%<br>B: ±1%<br>C: ±1%<br>D: ±1%<br>E: ±1%<br>F: ±1%<br>G: ±1%<br>H: ±1%<br>I : ±1%<br>±1% | A: -0.12% ~ +0.26%<br>B: -0.25% ~ 0%<br>C: -0.14% ~ +0.07%<br>D: -0.1% ~ +0.05%<br>E: -0.044% ~ 0.044%<br>F: -0.09% ~ +0.04%<br>G: -0.10% ~ +0.03%<br>H: -0.07% ~ 0.022%<br>I: -0.079% ~ 0.0125% | P |
| 5 | RIPPLE & NOISE | I/P:230VAC SPEC:<br>O/P:FULL LOAD<br>A: 150mV<br>B: 150mV<br>C: 180mV<br>D: 180mV<br>E: 180mV<br>F: 180mV<br>G: 240mV<br>H: 240mV<br>I : 240mV | A: 92mV<br>B: 120mV<br>C: 127mV<br>D: 114mV<br>E: 83mV<br>F: 95mV<br>G: 127mV<br>H: 110mV<br>I: 136mV | P |
| 6 | AC INPUT CURRENT | I/P:230VAC SPEC:1.6A<br>O/P:FULL LOAD | E:1.515A | P |
| 7 | MAX. INRUSH CURREN | I/P:230VAC SPEC:35A<br>O/P: FULL LOAD | E:34A | P |
| 8 | O/P VOLTAGE ADJ.RANGE | I/P:230VAC SPEC: A: 4.5~5.5V<br>O/P:MIN. LOAD B: 6~8.3V<br>C: 8~10.4V<br>D: 10.6~13.2V<br>E: 12~15V<br>F: 13.5~16.5V<br>G: 21~28V<br>H: 24~30V<br>I : 43~53V | A: 4.43V~5.88V<br>B: 5.64V~8.82V<br>C: 7.78V~11.4V<br>D: 9.56V~14.04V<br>E: 10.69V~15.65V<br>F: 12.17V~17.70V<br>G: 19.17V~28.86V<br>H: 22.98V~31.84V<br>I : 40.51V~54.76V | P |
| 9 | SET UP TIME | I/P:230VAC SPEC:100mS<br>O/P:FULL LOAD | E: 34mS | P |
| 10 | HOLD UP TIME | I/P:230VAC SPEC:20mS<br>O/P:FULL LOAD | E: 31.3mS | P |

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>TEST CONDITION / SPECIFICATION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>11</td><td>EFFICIENCY</td><td>I/P:230VAC<br>O/P:FULL LOAD<br>SPEC: A:78%<br>B:80%<br>C:80%<br>D:82%<br>E:83%<br>F:84%<br>G:85%<br>H:86%<br>I :87 %</td><td>A:79.58%<br>B:82.71%<br>C:83.17%<br>D:83%<br>E:82.97%<br>F:84.35%<br>G:85.76%<br>H:85.997%<br>I :86.222%</td><td>P</td></tr>
<tr><td>12</td><td>OVER LOAD PROTECTION</td><td>I/P:230VAC<br>O/P:TESTING<br>SPEC: 105%~150%</td><td>A:129%<br>B:125%<br>C:120%<br>D:129%<br>E:125%<br>F:125%<br>G:130%<br>H:130%<br>I :142%</td><td>P</td></tr>
<tr><td>13</td><td>OVER VOLTAGE PROTECTION</td><td>I/P:230VAC<br>O/P:TESTING<br>S-150-24<br>SPEC: 115%~135%<br>125%~145%</td><td>A:121%<br>B:134%<br>C:133%<br>D:127%<br>E:125%<br>F:124%<br>G:134%<br>H:129%<br>I :119%</td><td>P</td></tr>
<tr><td>14</td><td>GROUND LEAKAGE CURRENT</td><td>I/P:240VAC<br>SPEC: L-FG--<3.5mA<br>N-FG--<3.5mA</td><td>E: L-FG:0.75mA<br>N-FG:0.75mA</td><td>P</td></tr>
<tr><td>15</td><td>INSULATION RESISTANCE</td><td>SPEC: I/P-O/P: 500VDC/100MOhms MIN.<br>I/P-FG: 500VDC/100MOhms MIN.<br>O/P-FG: 500VDC/100MOhms MIN.</td><td>E: O/P-FG >100MOhms<br>I/P-O/P >100MOhms<br>I/P-FG >100MOhms</td><td>P</td></tr>
<tr><td>16</td><td>DIELECTRIC / WITHSTAND VOLTAGE</td><td>SPEC: I/P- O/P: 3KVDC/ 1 min. (10mA CUT-OFF)<br>I/P - FG: 1.5KVDC/ 1 min. (10mA CUT-OFF)<br>O/P -FG: 0.5KVDC/ 1 min. (10mA CUT-OFF)</td><td>E: I/P-O/P :5.16mA<br>I/P-FG :4.8mA<br>O/P-FG :3.361mA</td><td>P</td></tr>
<tr><td rowspan="2">17</td><td rowspan="2">EMS TEST</td><td>EFT TEST:<br>EN50082-1 IEC1000-4-4</td><td>F:CRITERIA A OK</td><td>P</td></tr>
<tr><td>SURGE TEST:<br>EN50082-1 IEC1000-4-5</td><td>F:CRITERIA A OK</td><td>P</td></tr>
<tr><td>18</td><td>BURN-IN TEST</td><td>I/P: 230VAC O/P: FULL LOAD<br>TA:26.2°C BURN-IN DURATION : 2 hrs</td><td>A:NON BREAK</td><td>P</td></tr>
<tr><td>19</td><td>ENVIRONMENT TEST</td><td>HIGH AMBIENT TEMPERATURE FULL LOAD TEST<br>I/P:230VAC O/P:FULL LOAD<br>AMBIENT TEMPERATURE:53.7°C</td><td>A: AFTER 22.5 hrs<br>NON BREAK</td><td>P</td></tr>
<tr><td>20</td><td>TEMPERATURE RISE TEST Trise OF PARTS</td><td>A: I/P :230VAC AFTER 2 hr BURN-IN WITH COOLING FAN (23CFM)<br>O/P :FULL LOAD TA:26.2°C
<table>
<tr><th>POSITION</th><th>P/N</th><th>TEMP</th><th>Trise</th></tr>
<tr><td>BD1</td><td>BRIDGE DIODE</td><td>63.4°C</td><td>37.2°C</td></tr>
<tr><td>Q2</td><td>MAIN TRANSISTOR</td><td>50.8°C</td><td>24.6°C</td></tr>
<tr><td>T1</td><td>MAIN TRANSFORMER WIRE</td><td>66.8°C</td><td>40.6°C</td></tr>
<tr><td>D13</td><td>O/P DIODE</td><td>76°C</td><td>49.8°C</td></tr>
<tr><td>C34</td><td>O/P FILTER CAPACITOR</td><td>33.5°C</td><td>7.3°C</td></tr>
<tr><td>L1</td><td>O/P CHOCK</td><td>54.3°C</td><td>28.1°C</td></tr>
<tr><td>C6</td><td>I/P FILTER CAPACITOR</td><td>53.6°C</td><td>27.4°C</td></tr>
<tr><td>LF1</td><td>I/P FILTER TRANSFORMER</td><td>42.1°C</td><td>15.9°C</td></tr>
</table></td><td>P</td></tr>
</table>

NEXT PREVIOUS

| NO | TEST ITEM | TEST CONDITION / SPECIFICATION | RESULT | VERDICT |
|---|---|---|---|---|
| 21 | LIFE CYCLE | A: SUPPOSE C34 IS THE MOST CRITICAL COMPONENT<br>I/P:230VAC O/P:FULL LOAD Ta:25°C Tc34:32.3°C Life: 898844hrs<br>I/P:230VAC O/P:FULL LOAD Ta:50°CTc34:56.6°C Life: 166794hrs | | P |
| 22 | CRITICAL COMPONENT RECORD<br>( FOR QC INSPECTION REFERENCE ONLY ) | A: FUSE :4A/250V<br>BRIDGE DIODE :KBJ608G<br>LINE FILTER :TF096-R1 EE-25<br>TRANSFOMER TF133A-R2 ETD-34<br>POWER SWITCHER :2SC2625 TO-3P<br>OUTPUT DIODE :CTB34M TO-3P<br>OUTPUT CAPACITOR :ELNA 3300uF/10V 105°C RJH<br>INPUT CAPACITOR :NITSUKO 330uF/200V 85°C<br>P.C.B :S-150N-R5 CEM-3 2 OZ SS | | |

| DATE | SAMPLE | TEST RESULT | TEST | APPROVAL |
|---|---|---|---|---|
| 19980515 | S-150 | PASS | H.C.LIOU | MAX LIN |
| 19990510 | S-150-24 | PASS | H.C.LIOU | MAX LIN |
| 20010226 | S-150-13.5,27,48 | PASS | SAM | MAX LIN |

PREVIOUS